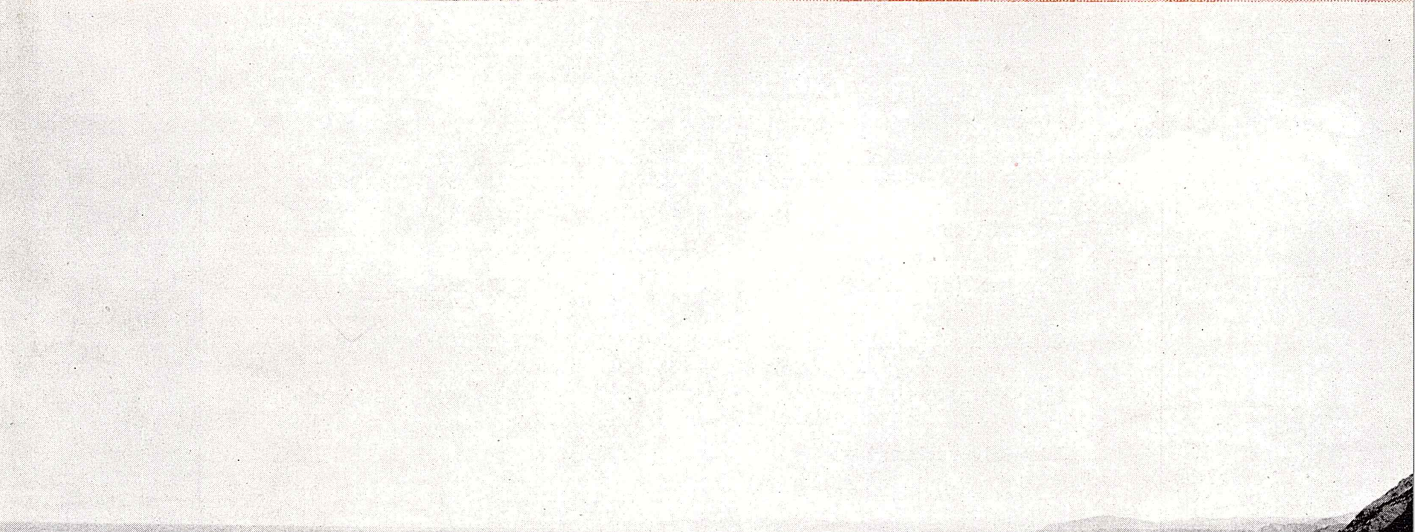
NEW ZEALAND RAILWAYS

Staff Bulletin

VOL. 6 NO 4 GENERAL MANAGER'S OFFICE, WELLINGTON JULY - AUGUST 1957



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NEW ZEALAND RAILWAYS AT A GLANCE

Year (April to March)	**1956–57**	**1955–56**
Route Milage—		
Average for year (worked)	3,481	3,506
Average for year (owned)	3,422	3,450
At 31 March (worked)	3,481	3,480
At 31 March (owned)	3,418	3,422
Passenger Traffic—		
Rail services (journeys)	25,377,170	25,075,242
Road services (journeys)	19,082,908	19,271,146
Lake steamer (journeys)	31,063	31,576
Freight Traffic (rail only)—		
Livestock tonnage	627,548	641,390
Livestock ton-miles (thousands)	66,982	65,439
Goods tonnage	9,697,136	10,036,533
Goods ton-miles (thousands)	1,069,092	1,082,891
Revenue (all services)	£32,765,336	£32,262,916
Expenditure (all services)	£33,034,709	£30,829,399
Interest charges	£4,650,654	£3,649,454
Capital investment—		
Lines and works	£81,883,401	£73,877,131
Rolling stock	£29,790,172	£27,540,811
Subsidiary services	£8,427,678	£7,130,242
Total	£120,101,251	£108,548,184
Equipment—		
Locomotives, steam	527	599
Locomotives, diesel	177	136
Locomotives, electric	28	28
Multiple-unit coaches, motor	49	49
Multiple-unit coaches, trailer	79	79
Diesel railcars	48	40
Other passenger vehicles	1,167	1,211
Brake and postal vans	485	491
Livestock wagons	4,547	4,810
Goods wagons	30,295	31,368
Buses and coaches	753	756
Motor trucks and vans	308	314

OUR COVER PICTURE: This magnificent sweep of coastline is seen by railcar passengers travelling between Napier and Gisborne. Here a northbound railcar is seen climbing the grade from Nuhaka to Waikokopu.

N.Z.R. Publicity Photograph

AN INVIGORATING CHALLENGE

EFFICIENT SERVICE TO ATTRACT MAXIMUM BUSINESS

"THE more efficient operation of our railways, as a vital factor in the economy of our country, presents an invigorating challenge," wrote our General Manager, Mr A. T. Gandell, in his annual report, presented to Parliament on 27 August 1957.

"Much money is being spent in improving and modernising our rail and road service facilities. . . . Already many improvements are evident and more will quickly follow. The accompanying challenge is through efficient service to attract the maximum business. During the present year the aim will be to attract business and to hold expenditure."

These remarks followed an outline of the Department's operations during the last financial year, from April 1956 to March 1957. The following brief review includes a selection of the more pertinent information from the report and will help to show where our railways have been heading in recent months, financially and operationally:

The year 1956 on New Zealand Railways was notable particularly for the first large-scale use in this country of diesel traction in main-line freight service. By the end of the year almost half of the railway freight traffic in the North Island was diesel-hauled.

Other features of the past year were a slight recession in goods traffic and a greatly increased working expenditure arising from two wage increases, from the employment of additional staff, and from increased depreciation and renewal charges.

Revenue from all services provided by the Department from April 1956 to March 1957, inclusive, rose by £502,420 to £32,765,336, but the total working expenditure rose by £2,205,310 to £33,034,709. This resulted in the first working deficit, before interest charges, to be incurred since 1952, and the loss of £269,373 was met out of the General Reserve Account.

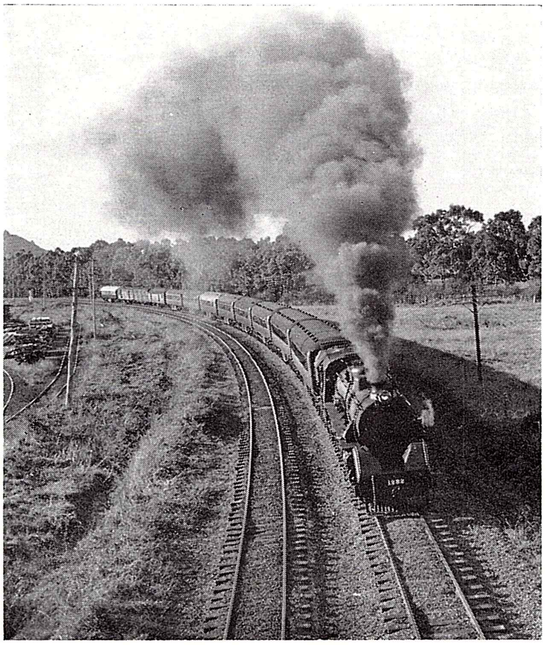
Interest charges amounted to £4,650,654, compared with £3,649,454 in the previous year, and were met out of the Consolidated Fund in accordance with the terms of the Government Railways Act 1949. The increase of more than £1,000,000 in interest charges was accounted for by higher rates paid for loan money and by an increase in the capital investment from £108,500,000 to £120,000,000.

The total working expenditure included £19,904,546 paid to staff as salaries and wages, an increase of 9 per cent on the previous year. The increased use of diesel traction, with its considerable savings in fuel costs, was reflected in reduced locomotive fuel and power bills, in spite of higher prices for coal and fuel oil. Fuel bills were down by £33,194, or 1·44 per cent, compared with 1955–56.

Higher prices were also evident in the charges for stores and materials, which cost £4,318,396, an increase of £187,930. The high cost of new equipment was reflected in an increase of £250,802 in depreciation and renewal charges.

In the face of these rising costs, it was unfortunate that goods traffic volume slackened off in the wet winter of 1956 and that the total for the year was about one per cent below that of the previous year. An increase of 8 per cent in freight charges and just over 10 per cent in fares was applied from 11 November 1956, but this was sufficient to offset only some of the wage and price increases.

These facts, together with the present-day competition between public and private forms of transport, point to the imperative necessity for maintaining the quality of our services at a level which will not only attract but will also hold traffic. All our efforts must be directed to this end with the utmost vigour ●



TRAFFIC AND OPERATION

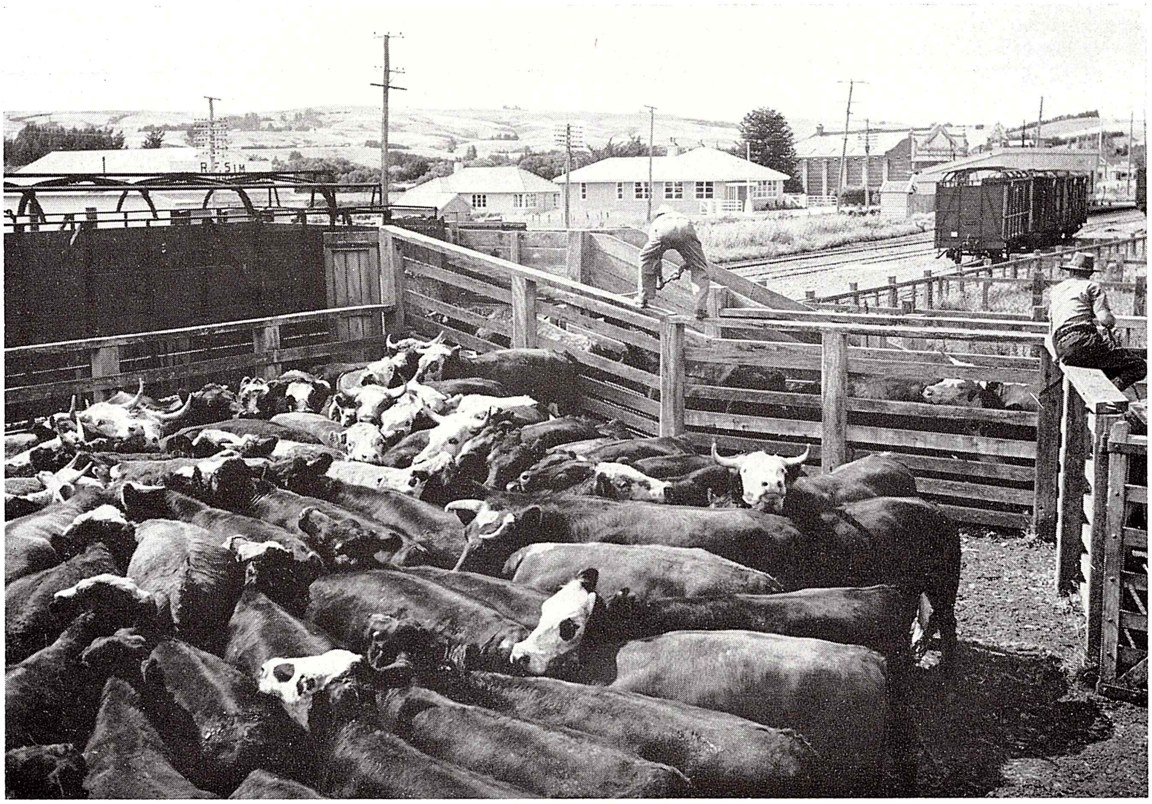
GOODS and livestock traffic, measured in ton-miles, was one per cent lighter last year than in the previous record year. The number of tons of goods conveyed – over an average distance of 110 miles – was 10,324,684. This was 353,239 tons, or 3·31 per cent, lower than the tonnage recorded for the previous year, but about 250,000 tons of short-haul traffic from ships' sides to delivery sidings and *vice versa* was not included in the 1956–57 figure. Because this local traffic is not hauled on the main line between stations, it is now considered to be more properly accounted for as miscellaneous operating revenue.

The exceptionally wet winter of 1956 was largely responsible for a marked decline in lime and manure traffic, but another factor was that, in many places, land now requires only small periodic applications of lime. Owing to the weather, little manure was forwarded until September 1956. The total decline in lime and manure traffic was 216,200 tons, or 12·8 per cent.

Traffic in other commodities on the whole was well maintained. Coal, with 1,833,000 tons, retained its lead as the most important single commodity carried, but timber – boosted by log traffic over the new railway from Murupara to Kawerau – moved into an undisputed second place with 1,173,000 tons. Timber traffic in the North Island increased by 241,627 tons, but in the South Island there was a decrease of 2,572 tons.

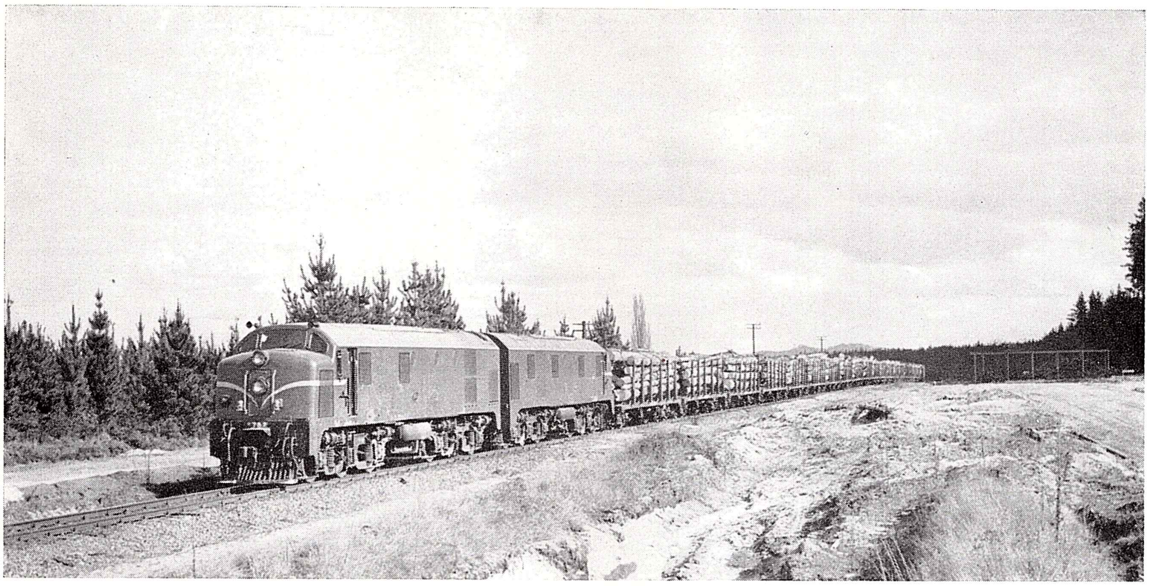
Livestock traffic declined in tonnage but rose in ton-milage to the highest figure since 1949–50. In line with reduced killings of sheep and lambs for export, the number of sheep and lambs carried fell by 524,697, but there was a substantial increase in the number of cattle carried.

A variety of factors affected the volume of traffic in some other commodities. Examples included the opening of a pipe line for petroleum products be-



In line with reduced killings of sheep and lambs for export, the number of sheep and lambs carried fell by more than half a million, but there was a substantial increase in the number of cattle carried.

N.Z.R. Publicity Photograph



Timber, boosted by log traffic over the new railway from Murupara to Kawerau, is now the second most important commodity carried by rail in New Zealand.
Photograph: Derek Cross

tween Lyttelton and Woolston and of bulk storage installations at Bluff, which substantially reduced the volume of short-distance traffic in petrol in tank wagons. Increase in long-distance hauls, however, held ton-milage at the previous high level.

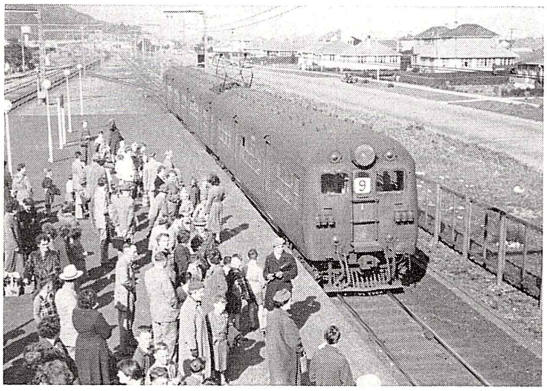
Completion of the Roxburgh hydro-electric project resulted in a decrease in cement carryings in the South Island by 23,116 tons, but this was partly offset by an increase of 8,831 tons in the North Island. Longer hauls brought the cement ton-milage up to a record of 44·3 million.

Patronage of extended railcar services has been good, but has not offset a decline in the number of other standard-fare passengers, a decline caused mainly by increased use of private cars, and by development of air and road services. There were indications that this decline was mainly in short-distance country traffic. The milage of mixed-train services was further reduced during the year.

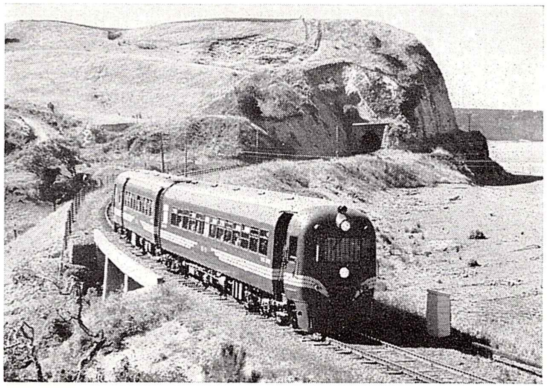
The number of journeys at special excursion and other reduced fares fell by 8½ per cent to 874,021, but revenue from this traffic rose by 8½ per cent, partly as a result of the increased fares introduced in November 1956. Increased use of private transport to country race meetings and other public functions was again the principal factor affecting this traffic.

Suburban traffic rose by 533,000 journeys to a new record peacetime total of 21,867,000 passenger journeys. Housing development in the Tawa Flat - Porirua - Plimmerton area was responsible for a large part of the traffic increase in the Wellington suburban area. There was a small increase in the Auckland area, but suburban traffic declined at Christchurch and Invercargill, where road transport competition, both private and public, is keenest.

These changes resulted in a net increase of 301,928 in the aggregate total of rail passenger journeys. The total for the year was 25,377,170, compared with 25,075,242 in 1955–56 ●

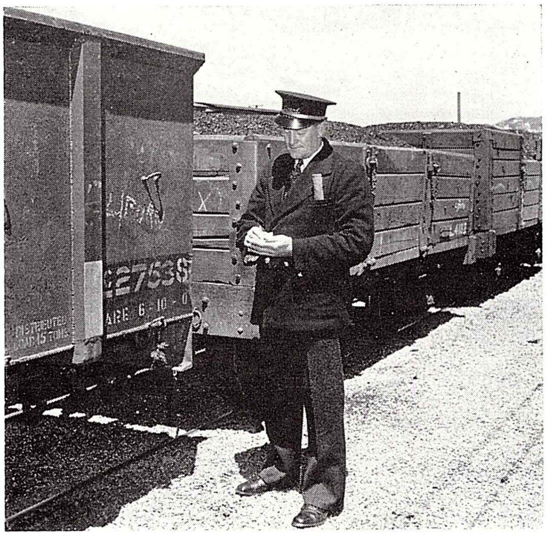


Suburban traffic rose to a new record peacetime total of more than 21·8 million passenger journeys.
N.Z.R. Publicity Photograph



Railcar services were well patronised, but the number of standard-fare passengers declined as a result of increased use of private cars.
N.Z.R. Publicity Photograph

STAFF



BETWEEN April 1956 and March 1957 there was a marked rise in the number of staff employed. There were more appointments and fewer resignations than in the previous year and the total number of employees at 31 March 1957 was 25,839, an increase of 1,042 when compared with the number a year earlier.

Of particular interest to railway staff were the two increases in salary and wage rates granted by the Government Railways Industrial Tribunal with effect from 1 April 1956 and 19 November 1956 respectively. The first added £830,000 to the aggregate income of railway employees during the year, and the second was estimated to add a further £767,000 over a full year.

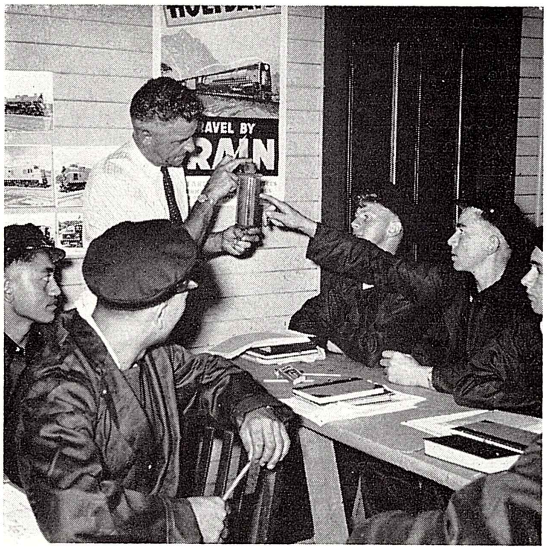
Another step forward was introduction in September 1956 of a new paid sick-leave scheme for employees in the General Division. It is planned also to establish a Railway Welfare Society representative of management and staff, and legislation is being sought this year to set up the organisation. Modelled on similar societies in the Post and Telegraph Department and in the Public Service, the new society will have for its objectives to foster the spirit of mutual aid among railwaymen and women and to raise funds to provide financial assistance for members in difficulties owing to sickness or misfortune. It is hoped that the society will in time be able to establish dwellings suitable for holiday or convalescent purposes for members and their families.

Although the safety campaign introduced several years ago continued with the utmost vigour, there was a substantial increase in the number of accidents recorded last year. This can be attributed to the policy of impressing upon employees the wisdom of reporting all accidents, no matter how slight. More minor injuries and fewer severe injuries were reported. The number of fatal accidents was eight, compared with eleven for the previous year.

An interesting development in the important subject of staff training was the holding of a successful trial school at Taumarunui in March 1957 for the training of locomotive trainees before posting them for duty at locomotive depots. Other special courses held during the year were for the training of automatic signal maintainers, electric linemen, draughtsmen, and draughting cadets. Selected members of the Department's staff also attended schools of instruction overseas in the latest methods of maintenance and operation of diesel-electric locomotives.

Railway sport, on both a local and a national basis, continued to be well supported, and rugby football, fostered for many years by the Department, continued to create interest throughout the Dominion. The New Zealand Railways Bowling Association, affiliated with the Australian Railway Bowling Institute, is also functioning with vigour. In February 1958 a team of Australian railway bowlers will be visiting this country.

On the staff organisational side, the most important changes recently were the reversion in April 1957 from Commission control to control by the Minister of Railways and a General Manager, and the institution in December 1956 of the Chief Stationmaster scheme designed to increase efficiency and enhance staff morale by introducing greater local responsibility in 34 compact areas under the general direction of the five existing district traffic managers ●



MODERNISATION AND IMPROVEMENT OF RAILWAYS

"I HAVE on a number of occasions expressed my belief in the vital necessity of adequate capital expenditure on the modernisation and improvement of our railways," said the Minister of Railways (Hon. J. K. McAlpine) in his 1957 Statement. "The national interest requires that the future of the railways should be assured and this is a view held almost universally."

He went on to say that considerable sums had in recent years been spent on modern motive power, on additional rolling stock, and on all sorts of projects large and small which would help to increase the carrying capacity and the efficiency of the railways. This expenditure was now beginning to bear fruit. The modern diesel-electric locomotives now in use had produced marked improvement in the movement of freight and had eliminated congestion which previously was chronic in some station yards. Furthermore, this had been done with a saving in costs estimated for last year at £380,000.

The largest item of capital expenditure during the year 1956–57 was that of £3,301,903 for new locomotives and rolling stock. Construction and purchase of and improvements to dwellings amounted to £890,085. In addition, the amount of £5,931,589 was transferred to the open lines account in respect of the Rimutaka Tunnel and deviation.

New locomotive stock placed in service between April 1956 and March 1957 included 30 diesel-electric locomotives (19 in the North Island and 11 in the South Island), four "Ja" class steam locomotives, and eleven diesel shunting locomotives. Withdrawn from stock were 76 steam locomotives (53 in the North Island and 23 in the South).

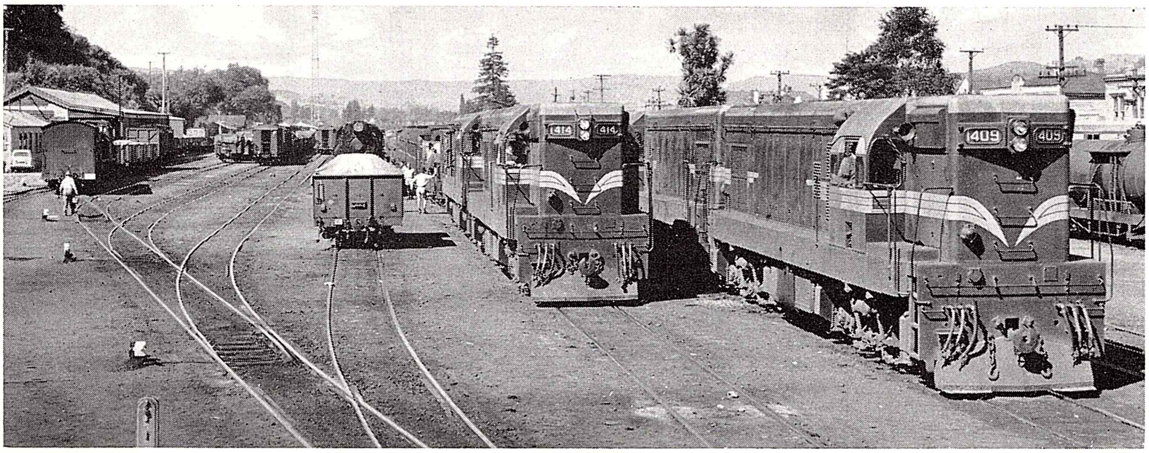
These changes brought the stock of locomotives from 763 to 732, excluding small shunting locomotives (commonly called tractors) of less than 200 h.p. The steam locomotive stock was reduced from 599 to 527 and no more are on order. Diesel-electric locomotives for main-line service, however, rose in numbers from 67 to 97, and 10 more on order at the close of the year have since been placed in service. The number of diesel shunting locomotives rose from 69 to 80, and six more were outstanding on current orders.

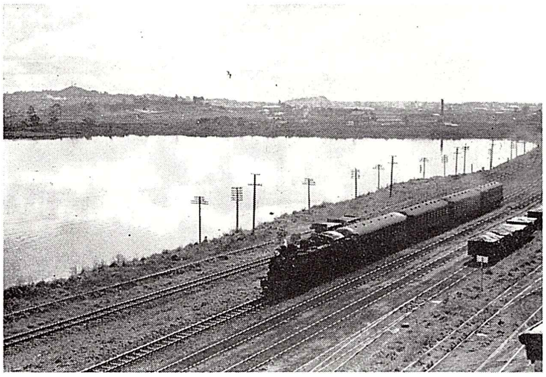
Passenger vehicle stocks were augmented by the addition of a further 14 articulated twin-unit railcars, leaving only two more to enter traffic, but the six "Wairarapa" type railcars introduced in 1936 were withdrawn, as well as 44 old-type passenger cars.

Although the number of wagons repaired during the year increased by 551 to 17,416 (including an increase of 5½ per cent in "heavy repairs" to 11,573), there was a reduction in the number of serviceable goods wagons available for traffic. This reduction was offset to some extent by the increased capacity of new wagons placed in service, but there was still a need for additions to and replacement of present stock.

The wagon building programme as at 31 March 1957 provided for 4,263 new wagons, including 2,300 "Lc" class highside wagons and 200 "Vs" class all-steel insulated wagons.

Considerable progress was also made with additions and improvements to fixed equipment, but this work was again limited by the extent to which design, supervisory, and construction staff were available. Works undertaken during the year, and continuing, included additional goods-handling facilities, particularly in the Auckland metropolitan area; extension of double line between Auckland and Frankton; bridge and track renewals; signalling improvements; extension of crossing loops; and additional workshops and locomotive servicing facilities. Further progress was made with the new station for Christchurch, and a number of station yard rearrangement schemes were in various stages of preparation or execution ●





MODERN MARSH

New £700,000 Frei

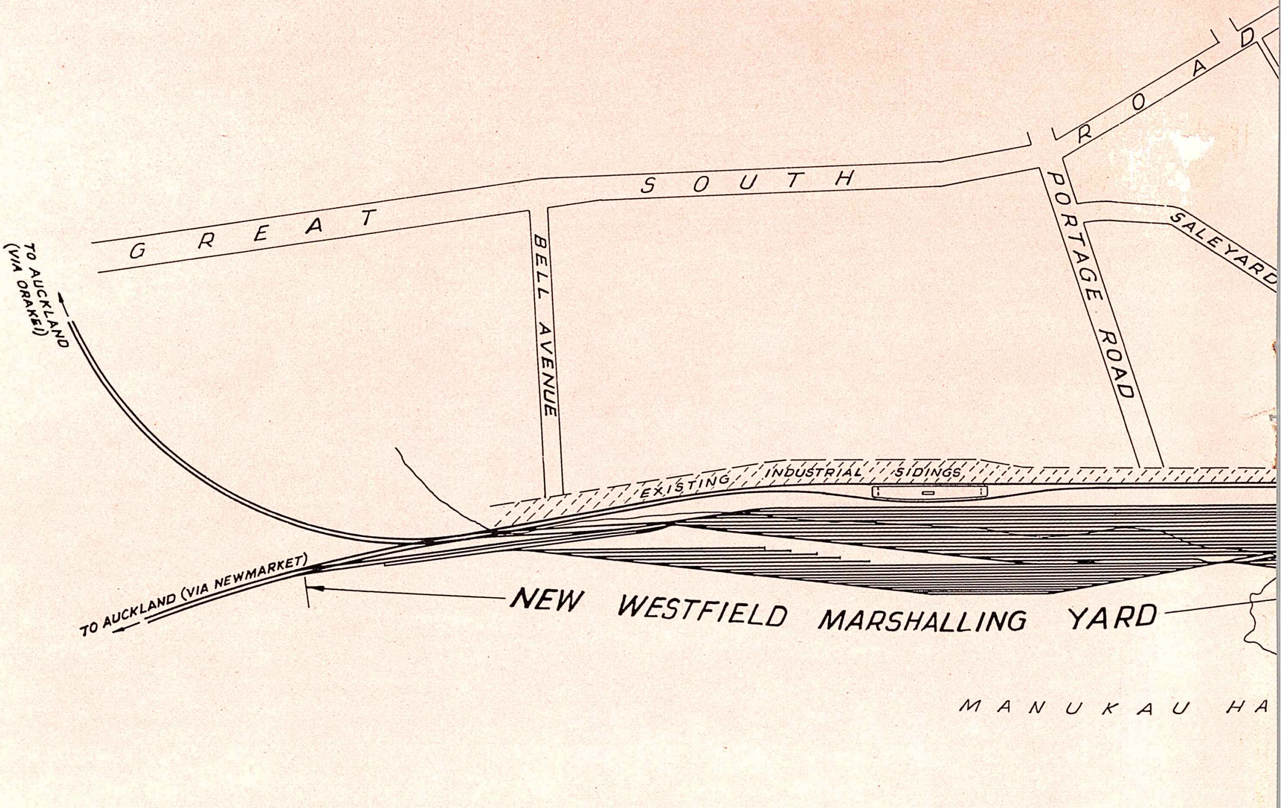
WORK is expected to begin soon on reclamation of land from the Manukau Harbour on which a big new marshalling yard is to be built. Situated about seven miles south of Auckland, at Westfield, the new yard will be more than a mile long, contain more than ten miles of track, and accommodate up to 1,900 wagons, excluding running lines. It will serve the whole of the Auckland metropolitan area.

The project, estimated to cost £700,000 over a period of years, will be a major step in an extensive plan to improve and extend freight handling facilities in the Auckland region. Modernisation of other railway freight yards at strategic points in the area is already proceeding at a total cost of more than £200,000.

In Auckland itself, new outdoor loading and unloading shelters have been built. At Otahuhu, work is in hand on enlargement and rearrangement of the loading and delivery yard, this work including construction of a new goods shed and loading shelter.

Similarly, at Newmarket and Penrose, the local facilities are being extended and new goods sheds and loading shelters are being provided. At Tamaki, land is being purchased for later development. The improvements at Penrose in particular have already enabled local firms to load more of their goods at this more convenient site instead of having to take them into the congested city station.

"The new marshalling yard at Westfield," said the Minister of Railways recently, when announcing Government approval of the scheme, "is the next logical development of this plan. It is located and designed to fit in


GREAT SOUTH ROAD
TO AUCKLAND (VIA ORAKEI)
BELL AVENUE
PORTAGE ROAD
SALEYARD
EXISTING INDUSTRIAL SIDINGS
TO AUCKLAND (VIA NEWMARKET)
NEW WESTFIELD MARSHALLING YARD
MANUKAU HA

LLING FACILITIES

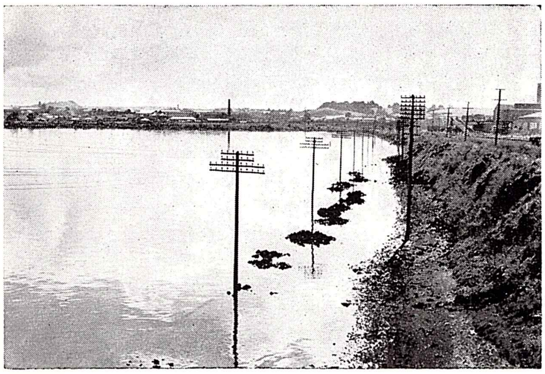
ht Yard at Westfield

with increasing industrial development, harbour extension works, the proposed Southdown-Avondale railway, and a major shunting yard at Frankton."

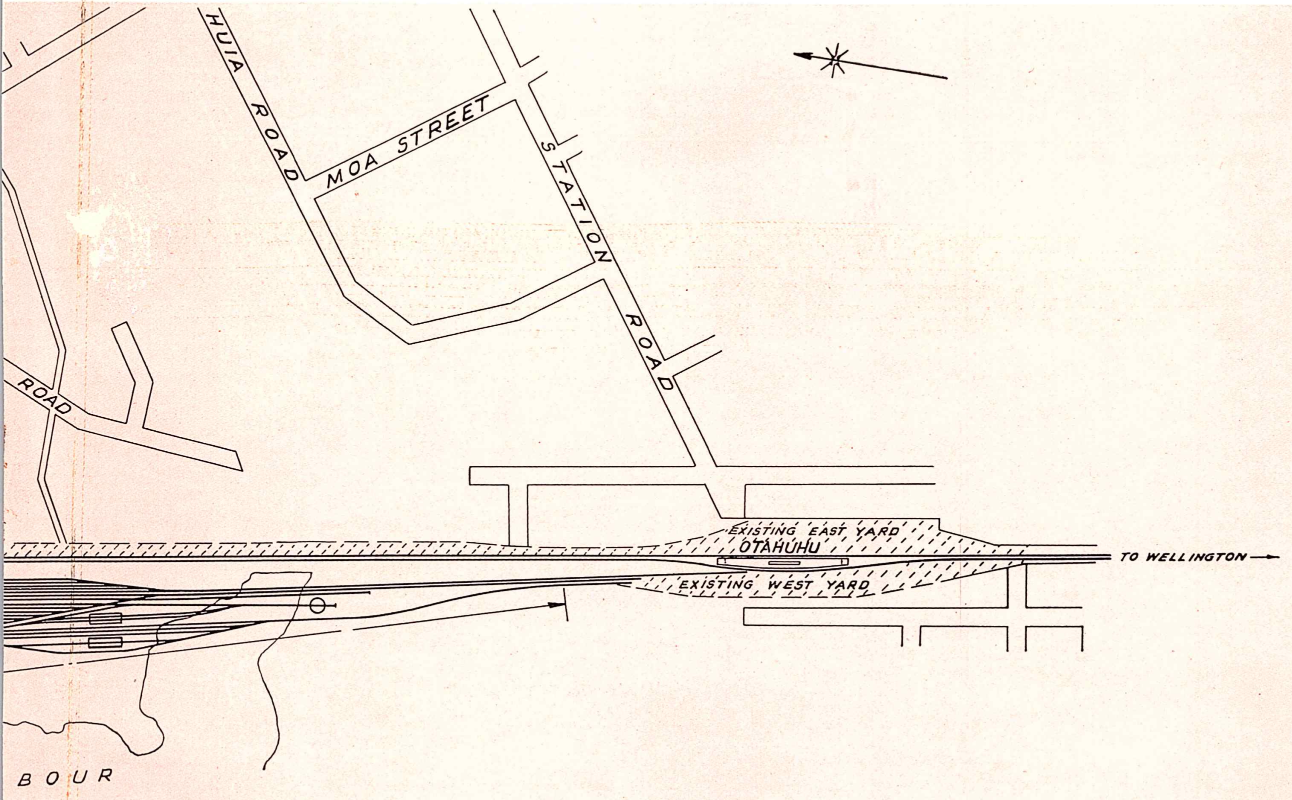
All wagons loaded at stations in the Auckland area will, when the new yard is finished, be taken to Westfield by diesel-electric shunting locomotives (now on order) and there marshalled into trains for onward movement. Goods trains from both north and south with wagons for destinations in the Auckland area will be received at Westfield, where the wagons will be classified according to destination and then taken to their respective unloading stations.

Concentration at Westfield of the work of wagon sorting will bring economies in operation. Also, reduction of the amount of this work required to be done at the Auckland city yard will clear the way for further yard rearrangement to give much-needed additional space for goods handling operations.

In addition to some ten miles of track, the Westfield project, as shown in the diagram below, will require about 100 sets of points and crossings. The area of the marshalling yards will be about 30 acres, of which some 20 acres will have to be reclaimed from mudflats, involving half a million cubic yards of earthwork. The longest sidings will hold goods trains up to 100 wagons in length, and there will be 27 sidings for sorting.



That all these new facilities are very necessary is well illustrated by the growth of traffic at Auckland over the past five years. Outward goods from stations Avondale to Otahuhu inclusive in 1951–52 amounted to 920,150 tons. Last year the figure was 1,163,000 tons, an increase of 26 per cent in five years ●



THE *Matisa* TRACK RECORDING CAR

Unusual Vehicle is Valuable Asset

MANY will have seen gangers and inspectors of permanent way – and even engineers – bending over the track to take measurements of cant and gauge with a test gauge; or of curvature with a string and rule. The programming of much of the work done on the track to ensure safety of train operation is based on these measurements.

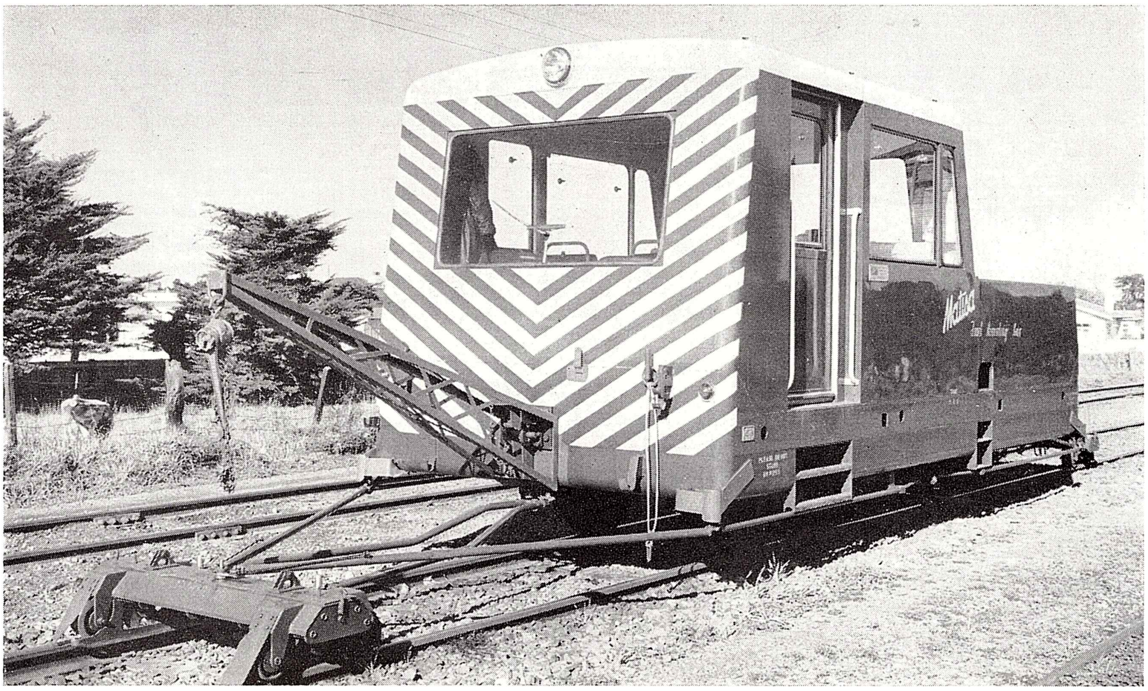
Unfortunately few men have a photographic memory and time does not allow all the measurements to be "booked" – except for those occasions when special requirements make it necessary to give detailed attention to a short section of track. The rate of change of measurements is of equal importance to the extreme measurements, but rate of change can only be determined by working over a series of figures after noting numerous measurements.

In 1951 the Department obtained from Austria a "Gaugemaster" trolley. When pushed along the track this trolley records, on a paper tape, readings of gauge and cant that enable variations to be quickly measured and located. This was a great advance on the hand measuring methods of earlier days. Being light, however, these trollies do not give measurements that would be obtained with heavier vehicles; nor do they measure curvature or the top of track.

Accordingly, when developments in track recording cars overseas about four years ago appeared to be far enough ahead for one to be suitable in type and size for our use, the matter was investigated. Late in 1955 a car made by Messrs Matisa Equipment Ltd. in Switzerland was ordered. Known as the Matisa Track Recording Car, it was landed at Wellington early in May, but because there is no 3 ft. 6 in. gauge track in Switzerland it had not been adjusted or run.

With the aid of the instruction book, those who were to be concerned with its operation spent some time and thought in learning how the machine works and how to adjust it. This was done at the East Town Way and Works Plant Zone. They found it to be a four-wheel railcar of rather unusual appearance – even more unusual when the measuring trollies with their jibs are rigged out in front, like feelers, ready for recording. It weighs over nine tons, on a 9 ft. 10 in. wheel base, which makes it roughly equivalent to an "La" wagon with a 4-ton load, and is powered by a Chevrolet petrol engine of 65 h.p.

What will it do? It takes measurements of: gauge of track (slack over or under 3 ft. 6 in.); cant; twist in 9 ft. 10 in. (i.e., change of cant); curvature of each rail (this also indicates errors in alignment on straight track); and high and low spots (including high and low joints). It can record these



measurements at speeds up to 15 m.p.h. The recording tape travels at either one or five feet a mile and has additional markings to indicate speed of travel and milage.

From the roomy cab with windows on all sides, the driver can look down on the leading measuring trolley and watch that it does not get into trouble on level crossings or turnouts, or by striking high ballast alongside the rail. He also keeps an eye on the pilot motor trolley ahead.

Alongside the driver is the spotter who presses a button at mile and other pegs, and when passing other trackside features that it is desired to record on the tape. He calls these out to the operator who notes what they are alongside the marks on the tape.

Facing the rear, with the recording instruments and tape before them, sit the operator and assistant engineer with the inspector of permanent way on one side, ganger of the length on the other, and the district engineer overlooking all. At the back of the recording table the seven recording pens move right or left in response to the track irregularities passed over. Another three pens, electrically operated, give a time impulse and mark tenths of a mile and location of mile and other pegs.

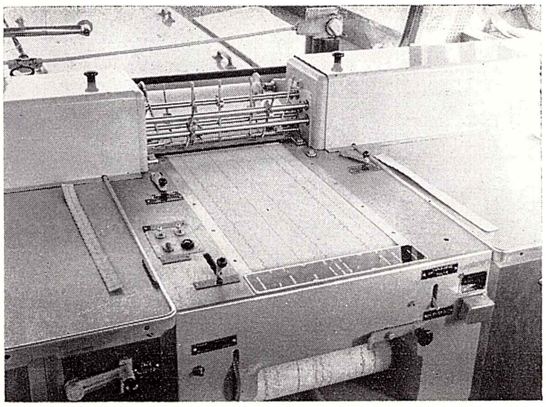
Each ganger has the tape markings explained to him and, as any more serious irregularities show up, they are analysed by the assistant engineer who dictates details to the inspector of permanent way. At the end of his length, the ganger is handed a letter with details of track conditions that need early attention. It is usual for one of the track irregularities to be inspected on the ground. Invariably what is found agrees with the tape indications.

The great value of the new machine, which was first used during the last week in June and has now covered nearly all the main lines in the North Island over which passenger services run, is that inspectors and gangers are provided with a full and clear record of all track measurements without the tedious, back-breaking work of hand measuring that, at the best, covered only portions of the track. Already there is noticeable improvement in much of the track as a result of the information made available for track maintenance staff.

It must not be thought that the test gauge, string and rule, and the Gaugemaster trolley can now go into the discard. On the contrary, they will be used as before, but the Matisa tape will show where to concentrate their use.

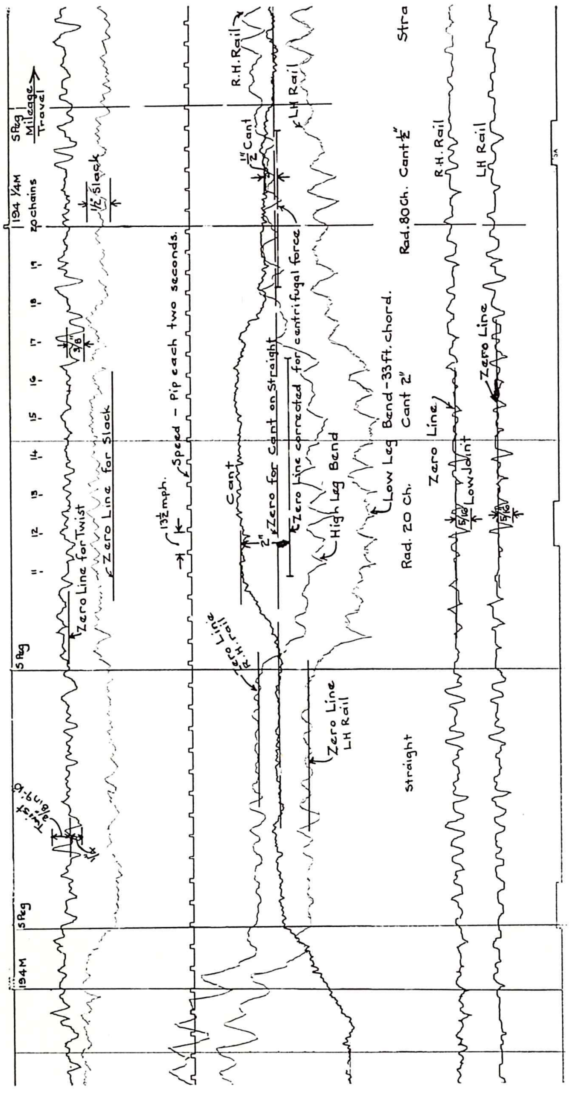
And finally, a word of caution. The Matisa Track Recording Car has no buffers. It MUST NOT be shunted or coupled up to other vehicles – except to a locomotive when it is to be hauled dead. Even with the measuring trollies retracted, the measuring transmissions are still exposed. They can be seriously damaged by being struck or interfered with. The car should be left severely alone by unauthorised persons and treated with the greatest respect at all times.

As with most innovations, time will be needed for the maintenance staff to learn how to obtain the best use from the equipment. This new item, the Matisa Car, shows promise of being one of the most valuable acquisitions in the current programme of mechanisation and improvement in track maintenance techniques ●



***ABOVE:* The recording table at the rear of the Matisa car, showing the tape and recording pens.**

***BELOW:* This section of tape gives a detailed record of track conditions on a curve near Oio, Main Trunk line.** *N.Z.R. Publicity Photograph*



NEW LOOK IN WAGONS

CORRUGATED ENDS ● RIDGE POLES ● IMPROVED DOORS

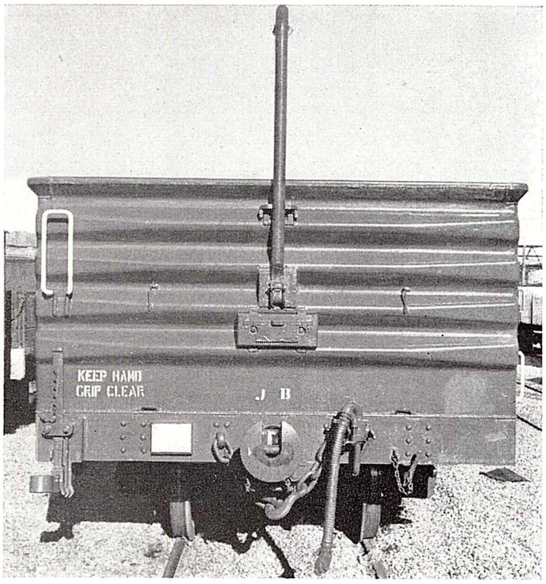
DELIVERY of 2,300 all-steel "Lc" class goods wagons being manufactured in England for New Zealand Railways began recently and regular monthly shipments are expected until the order is completed in December 1958. The first batches of these wagons are already in service in the North Island, and undoubtedly will be warmly welcomed by harassed wagon supply officers.

An output of 25 a week from the Otahuhu Workshops, where the first 1,000 are being assembled, will soon be reached. Deliveries to the South Island are expected to enable an output of 20 wagons a week from the Addington Workshops to begin next year, after an order for 129 "Xc" class box wagons is completed. A total of 750 new "Lc" wagons will be allocated to the South Island.

The new wagons are a redesigned and improved version of the 2,500 "Lc's" introduced between 1950 and 1954. Basically, the new ones are of similar dimensions. Each one has an inside length of 20 ft. 11½ in. and a width of 7 ft. 7½ in. Cubic capacity is 586 cubic feet and the maximum permissible load is 15 tons. Length over buffers is 23 ft. 6 in., wheelbase 13 ft., and weight unladen 6¾ tons.

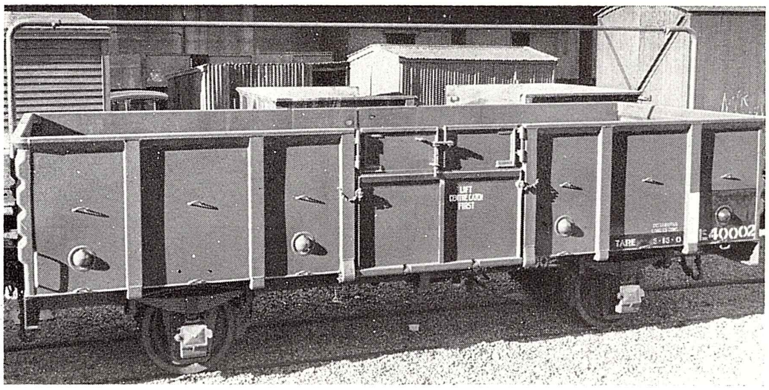
Compared with the earlier "Lc" wagons, the new ones have distinctive corrugated ends for added strength, and lashing-ring pockets on the inside of the wagon to make it easier to secure certain types of loads. The wagon door has been redesigned and the top portion is now hinged to open outwards in two halves instead of arranged to lift upwards in one piece. This has enabled it to be strengthened and made less susceptible to damage, as well as being easier to handle.

A notable improvement is provision of a tarpaulin ridge pole that can be dropped to either side of the wagon during loading or unloading operations. It enables tarpaulins to be placed over the wagon's contents in such a way that rain water is diverted well clear of the load and does not accumulate in depressions in the tarpaulin above the load. They can also be used to facilitate the unloading of wagons in the open during inclement weather. These ridge poles have proved so successful in trials on other "La" and "Lc" wagons that they will be a standard fitting on all future highside open wagons.



Another innovation on the new "Lc" wagons – and one which will be particularly appreciated by the maintenance staff – is a new design of brake adjusting gear. This enables the brakes to be adjusted from the sides of the wagons.

With the new stock, the total number of "Lc's" in traffic will be 4,801, with an aggregate carrying capacity of 72,015 tons. They will be a welcome addition to the goods wagon fleet●



***ABOVE*: This view of a new "Lc" wagon illustrates the corrugated construction of the ends, also the ridge pole in its raised position.**

***LEFT*: Other features of the latest "Lc" are the lashing-ring pockets in the sides and the improved doors.**

N.Z R. Publicity Photographs

HINTS ON RAILWAY PHOTOGRAPHY

by
E. W. Crumpton

SOME years ago I became interested in photography; but photography with a difference. From a pictorial standpoint, the idea was to portray attractive scenery along the railway, and to emphasise the dominant point of interest on a train entering the picture.

For the purpose of my experiment I selected that portion of the Midland line from the western portal of the Otira tunnel, to the boundary of the Arthur's Pass National Park at Aickens. In this pleasant locality steam and electric trains run frequently; the track parallels the Otira River; bridges span rough creeks; and mountain ranges in the background are conducive to good composition.

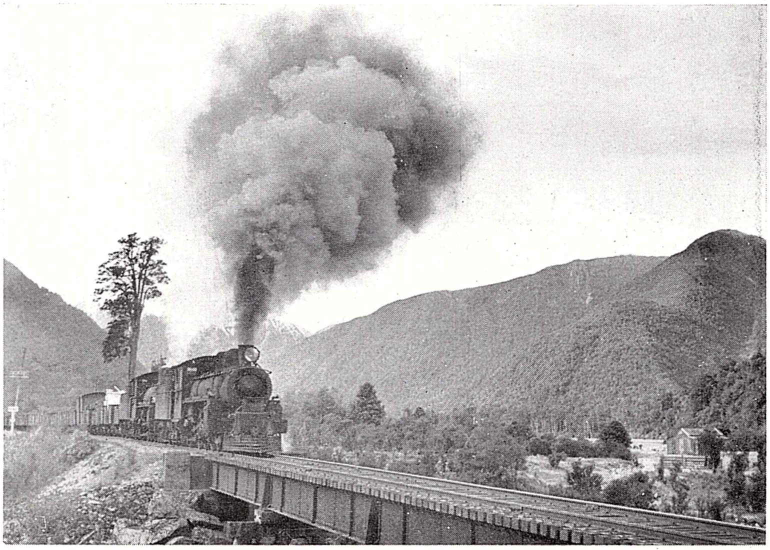
Experience soon proved that indiscriminate "snapshots" at passing trains seldom produced a picture worthy of more than a brief glance, and only after carefully selecting vantage points, when the sun shone in the valley at its best, was I able to isolate from a large collection of negatives a few that were above average.

I had several cameras at my disposal, but my final selection was a "Zeiss" Ikon, f/4·5 compur shutter, 1 sec. to 1/125 sec. For general purposes I used "Panatomic" or Super X films, both of which have great exposure latitude and sufficiently fine grain for enlarging. In many respects the choice of a 2¼" x 3¼" negative was an advantage, as the train was able to enter the right-hand side of the picture without obscuring the landscape, bringing the portrait into order and harmony, although there was always the likelihood of two dominant subjects.

The comparatively slow shutter speed used is insufficient to arrest the movement of fast express trains, but I found, by concentrating on trains travelling at moderate speeds, and taken at a degree not too broadside, that I began to obtain prints to my liking. With a camera of more extensive range, the ideal exposure would probably be in the vicinity of 1/400 sec. with aperture at f/5·6. To expose in dull light is never satisfactory as large apertures do not give sufficient depth of focus. For this reason I stopped down to f/16 at 1/100 sec. using a medium-yellow filter to give clearer detail in the background and ensure that clouds should stand out in better contrast.

Correct choice of the moment of exposure as the train proceeded in the framework of the picture was very important. Upon it depended the pictorial composition and arrangement. In almost every instance I selected my vantage point beforehand and waited for the train to appear, trusting that light conditions would be favourable and that the sun would not disappear behind a cloud at the critical moment. During these periods of waiting between trains, I found much to occupy my time and collected many pictures of interest along the wayside. One occasion I was able to do useful service to the District Engineer, who desired a series of pictures depicting the making of groynes for river protection in different stages of construction. A picture of a specially constructed wagon for transporting metal to the groyne was of special interest.

Yes, railway photography is a subject of absorbing interest, particularly to those of us who devote a lifetime to the railway service, and a collection of pictures taken down through the years will recall happy days and pleasant recollections●



Two "A" class 4-6-2 locomotives storm up the 1 in 66 grade into Otira with a 600-ton eastbound goods train carrying coal and timber.
Photograph: E. W. Crumpton

RAILWAYS COMPLIMENTED

THE appreciative letters published below were among those received recently by the General Manager.

One of these letters was from the New Zealand representative of an important overseas railway system, who complimented the Department on its Hutt Valley suburban train services. The other was from an insurance company official who praised the Department's household removal service.

Of the Hutt Valley trains, Mr C. R. H. Boggs, New Zealand Traffic Manager for Canadian National Railways, wrote as follows:

"For the past twenty months I have had both the privilege and pleasure of commuting between Wellington and Epuni, and contrary to what I sometimes read in the newspapers, I personally feel that all in all, we here in New Zealand have little to complain about, in spite of all the difficulties and problems involved in operating commuter services, and which sometimes do unfortunately cause an occasional delay.

"Besides making mention of facts you are already so well aware of, I would like to commend in general your commuter guards who often carry out their duties and responsibilities under trying conditions. One guard in particular whom I should like to specially commend is Mr J. R. Potter, although perhaps the only justification I could offer for this special mention, is the very pleasant, courteous and apparently efficient manner in which he carries out his duties."

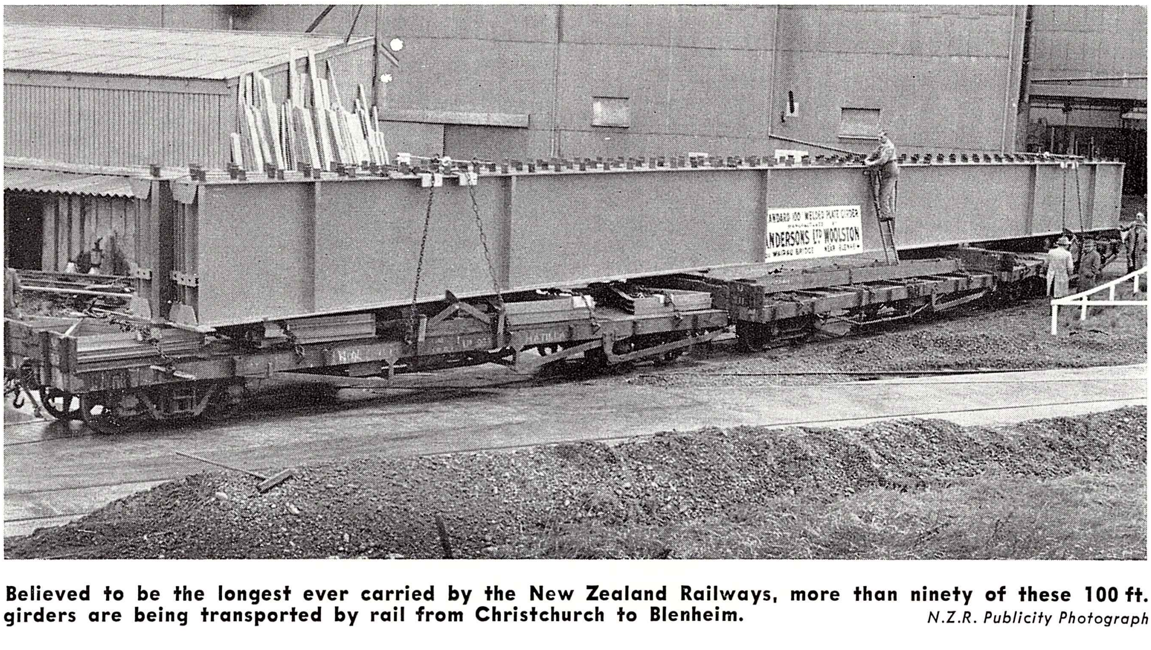
Mr D. N. Barnhill, resident inspector for the Royal Exchange Assurance Company, Napier, has this to say about his household removal from Wanganui to Napier:

"The removal of my furniture, etc. was arranged by your Department and I should like to express my appreciation for the service and courtesy which I received both in Napier and Wanganui from your staff. Also I must say a few words of praise for the care given to my furniture. Apart from a chip in a bed-end and a minor scratch to a wall plate the goods arrived in excellent order. The carriers who unloaded the furniture did a splendid job under difficult conditions. There was an unavoidable delay due to the previous occupier not vacating the premises at the time arranged, and during the midst of the unloading there was a heavy fall of rain.

"I think it only fair that one of your officers should be singled out for special mention and he is Mr William O'Brien. He certainly is a very interesting chap and, if I may say so, a very loyal officer of your Department.

"I must confess that I had doubts about the Railways handling the removal of my furniture due to reports I had heard from people concerning the rough treatment their furniture had received from some of your men. I was advised to discuss the matter with your Mr O'Brien, and although I called on him after office hours, he went to no end of trouble to prove to me that many of the stories in circulation are without foundation of truth. He assured me that I would be well satisfied with a Railways removal job, which indeed I am.

"These days one hears a lot of criticism directed at Government servants and I realise that much of the criticism is as unfair as it is unjustified. For my part I hope this letter of appreciation will be perhaps made known to the chaps concerned for a job well done. May they receive as much pleasure in reading as I do by writing" ●



Believed to be the longest ever carried by the New Zealand Railways, more than ninety of these 100 ft. girders are being transported by rail from Christchurch to Blenheim. *N.Z.R. Publicity Photograph*

OVERSEAS RAILWAYS

(8) NORWEGIAN STATE RAILWAYS

FROM sub-tropical Brazil we move to mountainous Norway. Here we find a country and a railway system that are very similar to New Zealand in many respects. The area is about three times that of New Zealand but more than half is uninhabitable mountain country. Population is about 3,500,000 and the largest city is Oslo, the capital, with about 450,000 people. The next largest is Bergen, with some 114,000.

Because of the mountainous territory and the severe winter climate, railway construction and operation are not easy. Tunnels, bridges, sharp curves, and steep grades abound, just as they do in many parts of New Zealand. In fact, some sections of the system were originally built to the 3 ft. 6 in. gauge, and consequently were laid with sharp curves of 9 to 11 chains radius to minimise earthworks.

Route milage of railway in Norway, nearly all to the 4 ft. 8½ in. gauge, is less than in New Zealand, but its construction was an engineering achievement of the first rank. As might be expected in a country with 60 per cent more population, volume of railway traffic in Norway is correspondingly greater than in New Zealand.

It is particularly interesting to notice how closely the standards of railway construction in Norway have approximated those in New Zealand, with the result that sizes of locomotives and rolling stock and the speed of trains are very similar in the two countries. The similarity between standards of service, in fact, is a useful illustration of the fact that geographic and economic conditions are more important factors in determining a railway's carrying capacity and the speed of its trains than the gauge of the track.

Both New Zealand and Norway for many years used rails weighing about 70 lb. per yard as standard on main lines, maximum axle-loadings were about 14–15 tons, and maximum authorised speeds were 50–56 m.p.h. Both systems are currently improving their property, and consequently their standard of service, as economic conditions permit. In Norway, because locomotive coal has to be imported at high cost, and because the country is rich in hydro-electric resources, an extensive programme of electrification is in hand, with dieselisation on light-traffic lines. The last section of electrification of the 375-mile line from Oslo through Kristiansand to Stavanger, for example, was completed in June 1956.

The following notes are correct to 30 June 1956, except where otherwise stated:

EXTENT OF THE SYSTEM

Route Milage Worked: 2,740 miles of 4 ft. 8½ in. gauge line, 36 miles of 3 ft. 6 in. gauge line, and 35 miles of 2 ft. 5½ in. gauge line.

Route Milage Electrified (including above): 814 miles of 4 ft. 8½ in. line, on the single-phase, 16⅔-cycle, 15,000-volts system with overhead current collection.

Locomotives: 392 steam, 4 diesel, and 114 electric.

Coaching Stock: 1,228 passenger-train cars, 93 oil-engined railcars, 4 3-car diesel train sets, and 76 electric motor-coaches.

Goods and Livestock Wagons: 12,142.

TRAFFIC (YEAR ENDED 30 JUNE 1956)

Passengers: Total number of journeys was 41,800,000.

Goods and Livestock: Revenue-earning traffic amounted to 15,250,000 tons. Principal commodities carried were foodstuffs, timber, ore, fertilisers, paper, and woodpulp.

ITEMS OF INTEREST

Running-Track Milage: There are 59 miles of double line.

Weight of Rails: Generally 71 lb. per yard (or less on branch lines), but 98 lb. per yard is now standard for heavy-traffic main lines.

Maximum Axle Loading: About 15½ tons on "71 lb." rail.

Maximum Authorised Speeds: 62 m.p.h. (but generally 50 or 56 m.p.h. on "71 lb." track).

Maximum Altitudes Attained: 4,270 ft. at Fagernut on the Oslo-Bergen line; 3,415 ft. near Hjerkinn on the Oslo-Trondheim line.

Steepest Gradients: 1 in 18 on the electrically operated branch line from Myrdal down to Flam; 1 in 40 on main lines. More than two-thirds of the milage are graded between 1 in 40 and 1 in 67.

Sharpest Curves: For new construction, 18½ chains radius; on older main lines, from 9 to 14 chains radius.

Tunnels: 734 with an aggregate length of 117 miles. Longest tunnels are the Kvineshei, 5·63 miles; Hagebostad, 5·27 miles; Gyland, 3·53 miles (all on the Sorland railway); and Gravahals, 3·31 miles, on the Bergen railway.

Bridges: More than 3,000 with an aggregate length of nearly 22 miles.

Typical Main-line Locomotives

11 "EL8" class 2,828 h.p. 1-Do-1 type electric locomotives, 82·8 tons total weight; 63 tons adhesive weight; introduced in 1940.

"EL9" class 1,000 h.p. Bo-Bo type electric locomotives, 48 tons total weight; introduced in 1946.

7 "Dovregubben" class 2-8-4 type 4-cylinder compound steam locomotives with 8-wheel tenders; 98·5 tons engine weight; 62 tons adhesive weight; two inside high-pressure cylinders 18 in. by 25⅝ in., two outside low-pressure cylinders 28½ in. by 27⅝ in., coupled wheel diameter, 5 ft. 0 in.; grate area 53·8 square feet; heating surface, 2,820 square feet; superheating surface, 1,097 square feet; working pressure, 242 lb. per square inch; capable of maintaining 37 m.p.h. up a 1 in 55 grade with a 350-ton train; maximum speed on test on level track, 71½ m.p.h.; introduced in 1936.

"Heavy" 4-8-0 type 4-cylinder compound steam locomotives with 8-wheel tenders; 79 tons engine weight; 57 tons adhesive weight; two inside high-pressure cylinders 16½ in. by 23⅝ in.; two outside low-pressure cylinders 24¾ in. by 23⅝ in.; coupled wheel diameter, 4 ft. 5¼ in.; grate area, 32·3 square feet; heating surface, 1,787 square feet; superheating surface, 490 square feet; working pressure, 228 lb. per square inch.

Electric and Diesel Stock

Typical 3-car electric train set comprises motor coach with four traction motors (total 980 h.p.), trailer coach, and control trailer coach; total accommodation, 165 seats; overall length, 216 ft. 10½ in.; total weight unladen 100·3 tons; maximum designed speed, 75 m.p.h.

Typical 3-coach diesel train set, comprising power coach, trailer, and power coach; total weight unladen, 113¼ tons; 155 seats plus buffet, toilet, and luggage accommodation; overall length, 216 ft. 10½ in.; two Paxman 12-cylinder diesel engines (one on each power car) each set to a 12 hr. rating of 500 h.p. at 1,250 r.p.m.; maximum designed speed, 75 m.p.h. (service speed 62 m.p.h.); an oil-fired boiler on each power car generates steam for heating.

Typical Train Services

10.00 a.m. Oslo-Bergen express, 305¾ miles in 11 hours with about 10 intermediate stops.

3.00 p.m. "Bergensekspressen" diesel train, Oslo-Bergen thrice weekly. 305¾ miles in 7¾ hours, limited stops.

1.40 p.m. "Dovreekspressen" diesel train, Oslo-Trondheim, 343½ miles in 8¼ hours with five stops (c.f. 11¼ hours by ordinary steam-hauled express trains making more stops).

Oslo-Kristiansand, 226¾ miles electrified, 6 hours by 10.0 a.m. express from Oslo, 5 hours by 5.05 p.m. "Sorlandsekspressen" electric train set ●

says SHEEL B. WRIGHT

"CHIEF ACCIDENT CAUSER"

NATIONAL SAFETY ASSN.

GREEN CROSS FOR SAFETY

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